



OIPE

RAW SEQUENCE LISTING DATE: 09/18/2002 PATENT APPLICATION: US/10/072,602B TIME: 15:23:30

```
3 <110> APPLICANT: University of Utah Research Foundation
             Cognetix, Inc.
                                                                 pp 6-10
      5
             Olivera, Baldomero M.
             McIntosh, J, Michael
      6
      7
             Watkins, Maren
      8
             Garrett, James E.
      9
             Cruz, Lourdes J.
             Grilley, Michelle
    10
             Schoenfeld, Robert M.
     11
             Walker, Craig
    12
    13
             Shetty, Reshma
    14
             Jones, Robert M.
                                                                   ENTERED
    16 <120> TITLE OF INVENTION: Cone Snail Peptides
    18 <130> FILE REFERENCE: 2314-249
C--> 20 <140> CURRENT APPLICATION NUMBER: US/10/072,602B
C--> 20 <141> CURRENT FILING DATE: 2002-02-11
    20 <150> PRIOR APPLICATION NUMBER: US 60/267,408
    21 <151> PRIOR FILING DATE: 2001-02-09
    23 <160> NUMBER OF SEQ ID NOS: 638
    25 <170> SOFTWARE: PatentIn version 3.0
    27 <210> SEQ ID NO: 1
    28 <211> LENGTH: 290
    29 <212> TYPE: DNA
    30 <213> ORGANISM: Conus ammiralis
    32 <220> FEATURE:
    33 <221> NAME/KEY: CDS
    34 <222> LOCATION: (4)..(231)
    36 <400> SEQUENCE: 1
    37 atc atg gag aaa ctg ata att ctg ctt ctt gtt gct gct gta ctg atg
                                                                              48
    38
           Met Glu Lys Leu Ile Ile Leu Leu Val Ala Ala Val Leu Met
                                                10
    41 tog acc cag gcc ctg gtt gaa cgt gct gga gaa aac cgc tca aag gag
    42 Ser Thr Gln Ala Leu Val Glu Arg Ala Gly Glu Asn Arg Ser Lys Glu
    43
                        20
                                            25
                                                                             144
    45 aac atc aat ttt tta tta aaa aga aag aga gct gct gac agg ggg atg
    46 Asn Ile Asn Phe Leu Leu Lys Arg Lys Arg Ala Ala Asp Arg Gly Met
                   35
                                        40
    49 tgg ggc gat tgc aaa gat ggg tta acg aca tgt ttt gcg ccc tca gag
                                                                             192
    50 Trp Gly Asp Cys Lys Asp Gly Leu Thr Thr Cys Phe Ala Pro Ser Glu
                                    55
    53 tgt tgt tct gag gat tgt gaa ggg agc tgc acg atg tgg tgatgacctc
                                                                             241
    54 Cys Cys Ser Glu Asp Cys Glu Gly Ser Cys Thr Met Trp
    55
           65
                                70
```

```
57 tqaccacaag ccatctgaca tcaccactct cctcttcaga ggcttcaag
                                                                           290
  59 <210> SEO ID NO: 2
  60 <211> LENGTH: 76
  61 <212> TYPE: PRT
  62 <213> ORGANISM: Conus ammiralis
  64 <400> SEQUENCE: 2
  65 Met Glu Lys Leu Ile Ile Leu Leu Val Ala Ala Val Leu Met Ser
                                          10
  68 Thr Gln Ala Leu Val Glu Arg Ala Gly Glu Asn Arg Ser Lys Glu Asn
  71 Ile Asn Phe Leu Lys Arg Lys Arg Ala Ala Asp Arg Gly Met Trp
                                  40
  74 Gly Asp Cys Lys Asp Gly Leu Thr Thr Cys Phe Ala Pro Ser Glu Cys
                              55
  77 Cys Ser Glu Asp Cys Glu Gly Ser Cys Thr Met Trp
                         70
  80 <210> SEQ ID NO: 3
  81 <211> LENGTH: 31
  82 <212> TYPE: PRT
  83 <213> ORGANISM: Conus ammiralis
  85 <220> FEATURE:
  86 <221> NAME/KEY: PEPTIDE
  87 <222> LOCATION: (1)..(31)
  88 <223> OTHER INFORMATION: Xaa at residues 18, 22 and 25 is Glu or gamma-carboxy-Glu;
           Xaa at residue 16 is Pro or hydroxy-Pro; Xaa at residues 3
           and 31is Trp (D or L) or bromo-Trp (D or L)
  90
  92 <400> SEQUENCE: 3
> 93 Gly Met Xaa Gly Asp Cys Lys Asp Gly Leu Thr Thr Cys Phe Ala Xaa
  94 1
                                          10
-> 96 Ser Xaa Cys Cys Ser Xaa Asp Cys Xaa Gly Ser Cys Thr Met Xaa
  97
                 20
                                      25
  99 <210> SEQ ID NO: 4
  100 <211> LENGTH: 295
  101 <212> TYPE: DNA
  102 <213> ORGANISM: Conus ammiralis
  104 <220> FEATURE:
  105 <221> NAME/KEY: CDS
  106 <222> LOCATION: (4)..(246)
  108 <400> SEQUENCE: 4
  109 atc atg gag aaa ctg aca att ctg ctt ctt gtt gct gct gta ctg atg
                                                                             48
  110
          Met Glu Lys Leu Thr Ile Leu Leu Val Ala Ala Val Leu Met
                                               10
  113 tcg acc cag gcc ctg cct caa ggt ggt gga gaa aaa cgc cca agg gag
                                                                             96
  114 Ser Thr Gln Ala Leu Pro Gln Gly Gly Gly Glu Lys Arg Pro Arg Glu
  115
                      20
                                           25
  117 aat atc aga ttt tta tca aaa aga aag aca aat gct gag cgt tgg agg
                                                                            144
  118 Asn Ile Arg Phe Leu Ser Lys Arg Lys Thr Asn Ala Glu Arg Trp Arg
                  35
                                      40
 \cdot 121 gag ggc agt tgc acc tct tgg tta gcg acg tgt acg caa gac cag caa
                                                                            192
```

DATE: 09/18/2002

TIME: 15:23:30

```
Input Set : A:\249 revised sequence 2.txt
                     Output Set: N:\CRF4\09182002\J072602B.raw
     122 Glu Gly Ser Cys Thr Ser Trp Leu Ala Thr Cys Thr Gln Asp Gln Gln
     125 tgc tgt act gat gtt tgt tac aaa agg gac tac tgc gcc ttg tgg gat
                                                                               240
     126 Cys Cys Thr Asp Val Cys Tyr Lys Arg Asp Tyr Cys Ala Leu Trp Asp
                                 70
     129 gac cgc tgaccacaag ccatctgaca tcaccactct cctgttcaga gtcttcaag
                                                                               295
     130 Asp Arg
     131 80
     133 <210> SEQ ID NO: 5
     134 <211> LENGTH: 81
     135 <212> TYPE: PRT
     136 <213> ORGANISM: Conus ammiralis
     138 <400> SEQUENCE: 5
     139 Met Glu Lys Leu Thr Ile Leu Leu Val Ala Ala Val Leu Met Ser
     142 Thr Gln Ala Leu Pro Gln Gly Gly Glu Lys Arg Pro Arg Glu Asn
                     20
                                         25
     145 Ile Arg Phe Leu Ser Lys Arg Lys Thr Asn Ala Glu Arg Trp Arg Glu
                                     40
     148 Gly Ser Cys Thr Ser Trp Leu Ala Thr Cys Thr Gln Asp Gln Gln Cys
     149
     151 Cys Thr Asp Val Cys Tyr Lys Arg Asp Tyr Cys Ala Leu Trp Asp Asp
                                                 75
     152 65
                             70
     154 Arg
     156 <210> SEQ ID NO: 6
     157 <211> LENGTH: 36
     158 <212> TYPE: PRT
     159 <213> ORGANISM: Conus ammiralis
     161 <220> FEATURE:
     162 <221> NAME/KEY: PEPTIDE
     163 <222> LOCATION: (1)..(36)
     164 <223> OTHER INFORMATION: Xaa at residue 3 is Glu or gamma-carboxy-Glu; Xaa at
               residues 1, 9 and 33 is Trp (D or L) or bromo-Trp
     165
               (D or L); Xaa at residues 25 and 29 is Tyr, 125I-Tyr,
     166
     167
              mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr
     169 <400> SEQUENCE: 6
  -> 170 Xaa Arg Xaa Gly Ser Cys Thr Ser Xaa Leu Ala Thr Cys Thr Gln Asp
    171 1
                                             10
    173 Gln Gln Cys Cys Thr Asp Val Cys Xaa Lys Arg Asp Xaa Cys Ala Leu
    174
                     20
                                         25
W--> 176 Xaa Asp Asp Arg
                 35
     179 <210> SEQ ID NO: 7
     180 <211> LENGTH: 275
     181 <212> TYPE: DNA
     182 <213> ORGANISM: Conus ammiralis
     184 <220> FEATURE:
     185 <221> NAME/KEY: CDS
     186 <222> LOCATION: (4)..(219)
```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/072,602B

```
188 <400> SEOUENCE: 7
     189 atc atg cag aaa ctg ata att ctg ctt ctt gtt gct gct gtg ctg atg
                                                                                48
             Met Gln Lys Leu Ile Ile Leu Leu Val Ala Ala Val Leu Met
     193 tcg acc cag gcc ctg ttt caa gaa aaa cgc aca atg aag aag atc gat
                                                                                96
     194 Ser Thr Gln Ala Leu Phe Gln Glu Lys Arg Thr Met Lys Lys Ile Asp
                         20
     197 ttt tta tca aag gga aag gca gat gct gag aag cag agg aag cgc aat
                                                                               144
     198 Phe Leu Ser Lys Gly Lys Ala Asp Ala Glu Lys Gln Arg Lys Arg Asn
     199
                     35
     201 tgc tcg gat gat tgg cag tat tgt gaa agt ccc agt gac tgc tgt agt
                                                                               192
     202 Cys Ser Asp Asp Trp Gln Tyr Cys Glu Ser Pro Ser Asp Cys Cys Ser
                                     55
     205 tgg gat tgt gat gtg gtc tgc tcg gga tgaactctga ccacaagtca
                                                                               239
     206 Trp Asp Cys Asp Val Val Cys Ser Gly
             65
     209 tecgacatea ecaeteteet gtteagagge tteaag
                                                                               275
     211 <210> SEQ ID NO: 8
     212 <211> LENGTH: 72
     213 <212> TYPE: PRT
     214 <213> ORGANISM: Conus ammiralis
     216 <400> SEQUENCE: 8
     217 Met Gln Lys Leu Ile Ile Leu Leu Val Ala Ala Val Leu Met Ser
                                             10
     220 Thr Gln Ala Leu Phe Gln Glu Lys Arg Thr Met Lys Lys Ile Asp Phe
                     20
                                         25
     223 Leu Ser Lys Gly Lys Ala Asp Ala Glu Lys Gln Arg Lys Arg Asn Cys
                 35
                                     40
     226 Ser Asp Asp Trp Gln Tyr Cys Glu Ser Pro Ser Asp Cys Cys Ser Trp
                                 55
     229 Asp Cys Asp Val Val Cys Ser Gly
     232 <210> SEQ ID NO: 9
     233 <211> LENGTH: 25
     234 <212> TYPE: PRT
     235 <213> ORGANISM: Conus ammiralis
     237 <220> FEATURE:
     238 <221> NAME/KEY: PEPTIDE
     239 <222> LOCATION: (1)..(25)
     240 <223> OTHER INFORMATION: Xaa at residue 10 is Glu or gamma-carboxy-Glu; Xaa at
residue 12 /
    241
               is Pro or hydroxy-Pro; Xaa at residues 6 and 18 is Trp (D or L)
               or bromo-Trp (D or L); Xaa at residue 8 is Tyr, 125I-Tyr, mono-
               iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr
     245 <400> SEQUENCE: 9
  ·> 246 Asn Cys Ser Asp Asp Xaa Gln Xaa Cys Xaa Ser Xaa Ser Asp Cys Cys
   /247 1
                         5
                                             10
                                                                 15
    249 Ser Xaa Asp Cys Asp Val Val Cys Ser
                     20
    252 <210> SEQ ID NO: 10
```

Input Set: A:\249 revised sequence 2.txt
Output Set: N:\CRF4\09182002\J072602B.raw

```
253 <211> LENGTH: 280
254 <212> TYPE: DNA
255 <213> ORGANISM: Conus ammiralis
257 <220> FEATURE:
258 <221> NAME/KEY: CDS
259 <222> LOCATION: (4)..(246)
261 <400> SEQUENCE: 10
262 atc atg cag aaa ctg ata atc ctg ctt ctt gtt gct gct cta ctg ttg
                                                                           48
        Met Gln Lys Leu Ile Ile Leu Leu Leu Val Ala Ala Leu Leu Leu
264
266 tcg atc cag gcg gta aat caa gaa aaa cac caa cgg gca aag atc aac
                                                                           96
267 Ser Ile Gln Ala Val Asn Gln Glu Lys His Gln Arg Ala Lys Ile Asn
                    20
                                         25
270 ttg ctt tca aag aga aag cca cct gct gag cgt tgg tgg cgg tgg gga
                                                                          144
271 Leu Leu Ser Lys Arg Lys Pro Pro Ala Glu Arg Trp Trp Arg Trp Gly
                35
274 gga tgc atg gct tgg ttt ggg aaa tgt tcg aag gac tcg gaa tgt tgt
                                                                          192
275 Gly Cys Met Ala Trp Phe Gly Lys Cys Ser Lys Asp Ser Glu Cys Cys
            50
                                 55
                                                                          240
278 tct aat agt tgt gac ata acg cgc tgc gag tta atg cga ttc cca cca
279 Ser Asn Ser Cys Asp Ile Thr Arg Cys Glu Leu Met Arg Phe Pro Pro
282 gac tgg tgacatcgac actctcctgt tcagagtctt caag
                                                                          280
283 Asp Trp
284 80
286 <210> SEQ ID NO: 11
287 <211> LENGTH: 81
288 <212> TYPE: PRT
289 <213> ORGANISM: Conus ammiralis
291 <400> SEQUENCE: 11
292 Met Gln Lys Leu Ile Ile Leu Leu Leu Val Ala Ala Leu Leu Leu Ser
293 1
295 Ile Gln Ala Val Asn Gln Glu Lys His Gln Arg Ala Lys Ile Asn Leu
296
298 Leu Ser Lys Arg Lys Pro Pro Ala Glu Arg Trp Trp Arg Trp Gly Gly
            35
301 Cys Met Ala Trp Phe Gly Lys Cys Ser Lys Asp Ser Glu Cys Cys Ser
                            55
304 Asn Ser Cys Asp Ile Thr Arg Cys Glu Leu Met Arg Phe Pro Pro Asp
305 65
                        70
                                            75
306 Trp
308 <210> SEQ ID NO: 12
309 <211> LENGTH: 39
310 <212> TYPE: PRT
311 <213> ORGANISM: Conus ammiralis
313 <220> FEATURE:
314 <221> NAME/KEY: PEPTIDE
315 <222> LOCATION: (1)..(39)
316 <223> OTHER INFORMATION: Xaa at residues 19 and 31 is Glu or gamma-carboxy-Glu; Xaa
```

at

Input Set: A:\249 revised sequence 2.txt
Output Set: N:\CRF4\09182002\J072602B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

```
Seq#:3; Xaa Pos. 3,16,18,22,25,31
Seq#:6; Xaa Pos. 1', 3', 9', 25', 29, 33
Seq#:9; Xaa Pos. 6,8,10,12,18
Seq#:12; Xaa Pos. 1,2,4,10,19,31,36,37,39
Seq#:15; Xaa Pos. 5,8,14,18,19
Seq#:18; Xaa Pos. 3,5,7,8,14,18
Seq#:21; Xaa Pos. 4,7,9,13,17,23,27
Seq#:24; Xaa Pos. 8,13
Seq#:27; Xaa Pos. 8,13
Seg#:30; Xaa Pos. 4,5,11
Seq#:33; Xaa Pos. 4,7,8,11,12,13,14,25,32
Seq#:36; Xaa Pos. 4,7,8,11,13,14,25,32
Seq#:39; Xaa Pos. 4,7,8,11,13,14,21,25,29
Seq#:42; Xaa Pos. 7,8,11,13,14,21,25
Seq#:45; Xaa Pos. 4,5,7,8
Seq#:48; Xaa Pos. 5,6,8,9
Seq#:51; Xaa Pos. 1,2,5,9
Seq#:54; Xaa Pos. 4,5,7,8
Seq#:57; Xaa Pos. 1,2,5,6,9
Seq#:60; Xaa Pos. 2,3,6,15,17,22,23
Seq#:63; Xaa Pos. 5,10
Seq#:66; Xaa Pos. 4,7,13,25,31
Seq#:69; Xaa Pos. 10,23,25,35
Seq#:72; Xaa Pos. 10,23,25,35
Seq#:75; Xaa Pos. 23,25,35
Seq#:78; Xaa Pos. 23,25,35
Seq#:81; Xaa Pos. 10,23,25,35
Seq#:84; Xaa Pos. 13,35
Seq#:87; Xaa Pos. 9,14,26
Seq#:90; Xaa Pos. 8,13,25
Seq#:93; Xaa Pos. 2,3,15,19,22,28,31,36
Seq#:95; Xaa Pos. 11,13,24
Seq#:96; Xaa Pos. 4,13,16,25
Seq#:99; Xaa Pos. 5,13,24,25
Seq#:102; Xaa Pos. 1,5,13,24,25
Seq#:105; Xaa Pos. 1,5,11,13,24,25
Seq#:108; Xaa Pos. 6,7,13,21,22,23,27
Seq#:111; Xaa Pos. 1,12,16
Seq#:114; Xaa Pos. 10,11,22,23,24,25
Seq#:115; Xaa Pos. 7
Seq#:118; Xaa Pos. 3,7,14,29,31,33,37,43,51,55,63,65
Seq#:119; N Pos. 87,113,128,139,144,165,526,542,586,593,602,612,621,628,639
Seq#:119; N Pos. 640,709,714,722,723,726,729,738,744,748,752,758
Seq#:121; Xaa Pos. 2,3,5,11,13,18,21,30,34,35
```

RAW SEQUENCE LISTING ERROR SUMMARY PATENT APPLICATION: US/10/072,602B DATE: 09/18/2002 TIME: 15:23:31

```
Seq#:124; Xaa Pos. 4,16,31,32,33,35,36,37,40,43,52,54,57,59
Seg#:127; Xaa Pos. 2,12,27,28,32,37,40,56,59
Seq#:128; Xaa Pos. 9,15,23,28
Seg#:129; Xaa Pos. 1,6
Seq#:132; Xaa Pos. 12,14,18,22,27,31
Seq#:135; Xaa Pos. 1,3,12,25,27,30
Seq#:138; Xaa Pos. 10,13,16
Seq#:141; Xaa Pos. 4,10,14,17,32
Seq#:142; Xaa Pos. 2,3,6
Seq#:143; Xaa Pos. 2,6
Seq#:144; Xaa Pos. 3,7
Seq#:145; Xaa Pos. 2,6
Seq#:148; Xaa Pos. 10,23,33,34
Seg#:151; Xaa Pos. 3,10,23,33,34
Seq#:154; Xaa Pos. 3,4,9,12,13,27,28,30
Seq#:157; Xaa Pos. 1,15,17,22,23
Seq#:160; Xaa Pos. 1,13,23,31,35
Seq#:163; Xaa Pos. 11
Seq#:166; Xaa Pos. 6,17,20
Seq#:169; Xaa Pos. 10,19,24
Seq#:172; Xaa Pos. 1,4,7,8,11,13,14,25
Seg#:175; Xaa Pos. 4,5,9,23,24,25
Seq#:176; Xaa Pos. 8,12,22
Seq#:179; Xaa Pos. 6,7,13,20,22
Seq#:182; Xaa Pos. 1,7,11,18,20
Seg#:185; Xaa Pos. 6,16,26,29,41
Seq#:188; Xaa Pos. 2,3,7,13,14
Seg#:189; Xaa Pos. 2,3,7,12,14,17
Seq#:192; Xaa Pos. 7,11,14,17
Seq#:193; Xaa Pos. 4
Seq#:196; Xaa Pos. 4,5,8,9,13,15,42,43
Seq#:199; Xaa Pos. 6,9,17,19,25,31,33
Seq#:202; Xaa Pos. 13,17,22,31,46,47
Seq#:205; Xaa Pos. 1,19,23,25,28,37
Seq#:208; Xaa Pos. 4,8,20
Seq#:209; Xaa Pos. 3,4,6
Seq#:210; Xaa Pos. 7
Seg#:213; Xaa Pos. 3
Seq#:216; Xaa Pos. 3,11,19,24,28,36,38,48,54,56,66,74,84
Seq#:217; Xaa Pos. 1,3
Seq#:220; Xaa Pos. 1,29,33
Seq#:223; Xaa Pos. 4,7,16,22,24,26,30,31
Seq#:226; Xaa Pos. 5,8,14,18,19
Seq#:227; Xaa Pos. 3,4,8,11,12,14,16,22,23
Seq#:230; Xaa Pos. 1,6,11
Seq#:233; Xaa Pos. 3,5,12,18,22,23,27
Seq#:236; Xaa Pos. 4,6,8,12
Seq#:239; Xaa Pos. 3,5,6
Seq#:240; Xaa Pos. 4,7,9,13,23
```

```
Seq#:241; Xaa Pos. 8,13
Seg#: 244; Xaa Pos. 1,5,7,9,11,13,14,25,36
Seq#:247; Xaa Pos. 1,5,7,11,13,14,29,36
Seq#:250; Xaa Pos. 3,18,22,23,26,34,42
Seg#:253; Xaa Pos. 8,27,28,44
Seq#:256; Xaa Pos. 7,10,13,16
Seq#:259; Xaa Pos. 1,2,3,5,9,16,31
Seq#:262; Xaa Pos. 1,5,6,9,10,13,15,26,33
Seq#:265; Xaa Pos. 6,12,13,20,25,29
Seq#:268; Xaa Pos. 4,10,11,19,22,29
Seq#:271; Xaa Pos. 1,2,3,5,9,16,31
Seq#:274; Xaa Pos. 1,5,6,9,10,13,15,26,33
Seq#:277; Xaa Pos. 9,11,16
Seg#:280; Xaa Pos. 4,8
Seg#:281; N Pos. 110,115,125,127,128,130,132,135
Seg#:281; Xaa Pos. 37,39,42,43,44
Seg#:282; Xaa Pos. 37,39,42,43,44
Seq#:283; Xaa Pos. 4,7,8
Seq#:286; Xaa Pos. 4
Seq#:289; Xaa Pos. 5,7,8
Seq#:292; Xaa Pos. 3,4,5
Seq#:295; Xaa Pos. 5
Seq#:298; Xaa Pos. 3,6,7
Seq#:301; Xaa Pos. 3,4,6,7
Seq#:304; Xaa Pos. 3,4,7
Seq#:307; Xaa Pos. 1,4,9,11
Seq#:310; Xaa Pos. 1,6
Seq#:313; Xaa Pos. 2,3,15,17,22,23,31,32,36
Seq#:316; Xaa Pos. 1,3,6,15,17,22,23,32,35,37
Seq#:319; Xaa Pos. 2,3,15,17,20,22,28,31,37
Seq#:320; N Pos. 256
Seq#:322; Xaa Pos. 2,3,15,17,22,23,31,32,36
Seg#:325; Xaa Pos. 1,3,11,15,22,23,28,31,32,38
Seq#:328; Xaa Pos. 2,3,18,22
Seq#:331; Xaa Pos. 7,12
Seq#:334; Xaa Pos. 11
Seq#:337; Xaa Pos. 6,10
Seq#:338; N Pos. 35
Seq#:340; Xaa Pos. 11
Seq#:341; N Pos. 95
Seq#:343; Xaa Pos. 6,11
Seq#:346; Xaa Pos. 7,12
Seq#:347; Xaa Pos. 6,11
Seq#:350; Xaa Pos. 5,10
Seq#:353; Xaa Pos. 6,11
Seq#:354; N Pos. 251,253,270,311
Seq#:356; Xaa Pos. 7,12
Seq#:359; Xaa Pos. 1,6,11
Seq#:362; Xaa Pos. 1,11
```

```
Seq#:365; Xaa Pos. 11
Seq#:366; N Pos. 292,303
Seq#:368; Xaa Pos. 8,12
Seq#:371; Xaa Pos. 5,10
Seq#:372; Xaa Pos. 2,5,8,17,23,27,32,38,39,41,43,45,58
Seq#:375; Xaa Pos. 4,5,7,9
Seq#:376; N Pos. 2,3,8,10,18,21,22,28,32,35,38,39,44,50,52,66,67,76,77,80
Seq#:376; N Pos. 84,86,88,89,92,96,97,98,99,107,108,111,112,113,114,115,119
Seq#:376; N Pos. 121,126,130,131,135,136,144,153,154,156,159,166,169,172
Seq#:376; N Pos. 173,174,175,181,182,184,185,193,194,195,209,213,214,226
Seq#:376; N Pos. 227,228,230,233,234,235,236,248,250,252,254,257,260,261
Seq#:376; N Pos. 262,266,269,295,303,331,340,345,380,407,439,525,533
Seq#:376; Xaa Pos. 3,14
Seq#:377; Xaa Pos. 3,14
Seq#:378; Xaa Pos. 1,5,11
Seg#:381; Xaa Pos. 1,5
Seq#:384; Xaa Pos. 2,6,10,12
Seq#:387; Xaa Pos. 2,6
Seq#:390; Xaa Pos. 6,10,12
Seq#:393; Xaa Pos. 1,3,8,11,14,16
Seq#:396; Xaa Pos. 1,3,8,11,14,16
Seq#:399; Xaa Pos. 2,8,12
Seq#:402; Xaa Pos. 6,10
Seq#:403; Xaa Pos. 6,13
Seq#:404; Xaa Pos. 6,13
Seq#:407; Xaa Pos. 1,7,14
Seq#:410; Xaa Pos. 1,2,7,14,15
Seq#:413; Xaa Pos. 1,2,7,14,15
Seq#:416; Xaa Pos. 5
Seq#:417; Xaa Pos. 4,6,11
Seq#:418; N Pos. 193
Seq#:420; Xaa Pos. 4,6,7,10,13
Seq#:423; Xaa Pos. 6,11,12,13,14
Seq#:424; N Pos. 210
Seq#:426; Xaa Pos. 2,7,8,14,19
Seq#:429; Xaa Pos. 5,10,12
Seq#:432; Xaa Pos. 6,13
Seq#:435; Xaa Pos. 5,6,12
Seq#:438; Xaa Pos. 7,8,14
Seq#:441; Xaa Pos. 6,7,10,13
Seg#:444; Xaa Pos. 6,7,13
Seg#:447; Xaa Pos. 6,7,9,15
Seq#:450; Xaa Pos. 2,7,10,13
Seq#:453; Xaa Pos. 7,15
Seq#:454; N Pos. 8,14,15,22,25,27,32,33,37,52,59,60,65,75,78,87,88,93,101
Seq#:454; N Pos. 104,106,108,110,114,116,120,130,131,132,136,141,146,151
\mathtt{Seq\#:454;\ N\ Pos.\ 157,159,172,175,176,183,184,186,189,190,195,198,201,202}
Seq\#: 454; \ \ N \ \ Pos. \ \ 206, 209, 210, 211, 213, 219, 220, 224, 228, 235, 242, 244, 250, 255
Seq#:454; N Pos. 258,259,262,269,276,290,294,301,306,308,309,316,318,320
```

```
Seq#:454; N Pos. 322,324,336,372
Seq#:456; Xaa Pos. 6,7,8,9,11,12,14,15,16
Seq#:465; Xaa Pos. 14,26,31
Seq#:467; Xaa Pos. 9,13,17
Seq#:468; Xaa Pos. 16
Seq#:469; Xaa Pos. 13
Seq#:470; Xaa Pos. 16
Seq#:471; Xaa Pos. 1,5,6,10,15,26,33
Seq#:473; Xaa Pos. 3,7,8,14
Seq#:475; Xaa Pos. 16
Seq#:476; Xaa Pos. 18
Seq#:477; Xaa Pos. 18
Seq#:478; Xaa Pos. 19
Seq#:479; Xaa Pos. 9,13
Seq#:531; Xaa Pos. 12
Seq#:532; Xaa Pos. 11
Seq#:542; Xaa Pos. 3
Seq#:543; Xaa Pos. 5,6
Seq#:548; Xaa Pos. 7,13,21,22,27
Seq#:569; Xaa Pos. 4,13,16
Seq#:585; Xaa Pos. 2,3,12,14
Seq#:622; Xaa Pos. 3
Seq#:625; Xaa Pos. 9
Seq#:627; Xaa Pos. 3
Seq#:628; Xaa Pos. 2
```